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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,906	03/08/2002	I-Lam Chen	SUND 289	2887

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EXAMINER	
COUGHLAN, PETER D	

ART UNIT	PAPER NUMBER
2129	

DATE MAILED: 10/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/092,906	CHEN ET AL.	
	Examiner	Art Unit	
	Peter Coughlan	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *March/3/2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Examiner's Detailed Office Action

Claims 1-36 are pending in this application.

Claim Rejections – 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 20 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The word 'pseudo' is not enabled. Pseudo is not defined anywhere in the specification, and is first mentioned in claim 20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al in view of Feng, in view of Hewlett, in view of Alon (U. S. Patent 6,163,583, referred to as **Lin**; On-line adaptive chaotic demodulator based on radial-basis-function neural network, referred to as **Feng**; HP Kayak XU800 PC Workstation, Technical Reference Manual, referred to as **Hewlett;** Efficient Simulation of Finite Automata by Neural Nets, referred to as **Alon**).

Claim 1.

Lin teaches a method for changing a frequency of a central processing unit (CPU) under the control of a neural network, comprising: providing a plurality of environmental parameters (**Lin**, C3:65 through C4:2 and C4:54-56);

calculating an output vector by inputting the environmental parameters to the neural network(**Lin**, C4:44-47; Examiner's Note (EN) The finite state machine is the neural network. The reasoning is every finite state machine can be built as a neural network (**Alon**, abstract).);

and changing the frequency of the CPU according to the output vector(**Lin**, C4:39-42).

Claims 2, 10, 11, 21 and 22.

Lin does not teach the neural network is a radial basis function. Feng teaches the neural network is a radial basis function (**Feng**, abstract). It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify a method for changing a frequency of a central processing unit (CPU) under the control of a neural network of Lin with using a neural network of a radial basis function design by Feng. The radial neural

network is a 3 layer design. The first layer has the same number of inputs nodes as environmental parameters. The intermediate layer has as many nodes as functions that correspond to the parameters. The final layer is a single node which outputs the desired answer.

Claims 3, 14, 25 and 31.

Lin teaches the environmental parameter comprises a clock multiplier factor that the CPU uses currently (**Lin**, C4:25-28; EN Output on 220 is the current clock rate.).

Claims 4, 15, 26 and 32.

Lin teaches a environmental parameter comprises a clock multiplier factor that the CPU uses previously (**Lin**, C3:65 through C4:2; EN The previous clock rate is F1.).

Claims 5, 16, 27 and 33.

Lin and Feng do not teach an environmental parameter comprises a data accessing condition for an IDE (Intelligent Drive Electronics) controller. Hewlett teaches an environmental parameter comprises a data accessing condition for an IDE (Intelligent Drive Electronics) controller (**Hewlett**, p10, C1:11). It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify a method for changing a frequency of a central processing unit (CPU) under the control of a neural network of Lin with

an environmental parameter comprises a data accessing condition for an IDE (Intelligent Drive Electronics) controller of Hewlett. This is used to control the IDE devices of a computer.

Claims 6, 17, 28 and 34.

Lin and Feng do not teach an environmental parameter comprises a data accessing condition for a DMA (Direct Memory Access) controller. Hewlett teaches an environmental parameter comprises a data accessing condition for a DMA (Direct Memory Access) controller (**Hewlett**, p104, 19-25). It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify a method for changing a frequency of a central processing unit (CPU) under the control of a neural network of Lin with an environmental parameter comprises a data accessing condition for a DMA (Direct Memory Access) controller of Hewlett. A DMA is needed to allow I/O to memory and memory to I/O transfers.

Claims 7, 18, 29 and 35.

Lin and Feng do not teach an environmental parameter comprises a data accessing condition for an AGP (Accelerated Graphics Port) interface. Hewlett teaches an environmental parameter comprises a data accessing condition for an AGP (Accelerated Graphics Port) interface (**Hewlett**, p30, 13-22). It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify a method for changing a frequency of a

central processing unit (CPU) under the control of a neural network of Lin with an environmental parameter comprises a data accessing condition for an AGP (Accelerated Graphics Port) interface of Hewlett. The ability of the AGP interface is a factor to be considered when determining the CPU speed.

Claims 8, 19, 30 and 36.

Lin and Feng do not teach an environmental parameter comprises a data accessing condition for a PCI Peripheral Component Interconnect) interface. Hewlett teaches an environmental parameter comprises a data accessing condition for a PCI Peripheral Component Interconnect) interface (**Hewlett**, p31, 9-32). It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify a method for changing a frequency of a central processing unit (CPU) under the control of a neural network of Lin with an environmental parameter comprises a data accessing condition for a PCI Peripheral Component Interconnect) interface of Hewlett. The speed of the PCI interface is a factor to be weighed when determining the frequency of the CPU.

Claim 9.

Lin teaches a method for changing a frequency of a central processing unit (CPU) under the control of a neural network, wherein the neural network comprises m basis functions and m basis weights for calculating an output vector according to n environmental parameters, the

method comprising steps of: providing the n environmental parameters (**Lin**, C3:65 through C4:2 and C4:54-56).

Lin does not teach calculating m basis vectors by substituting the n environmental parameters into the m basis functions. Feng teaches calculating m basis vectors by substituting the n environmental parameters into the m basis functions (**Feng**, p026202-4, C1:6-8 and 15-20). It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify a method for changing a frequency of a central processing unit (CPU) under the control of a neural network, wherein the neural network comprises m basis functions and m basis weights for calculating an output vector according to n environmental parameters of Lin with calculating m basis vectors by substituting the n environmental parameters into the m basis functions of Feng. This is the functional design of the intermediate layer of the radial neural network.

Lin does not teach calculating the output vector according to the m basis weights and the m basis vectors. Feng teaches calculating the output vector according to the m basis weights and the m basis vectors (**Feng**, p026202-4, 8-15). It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify a method for changing a frequency of a central processing unit (CPU) under the control of a neural network, wherein the neural network comprises m basis functions and m basis weights for calculating an output vector according to n environmental parameters of Lin with calculating the output vector according to the m basis weights and the m basis vectors of Feng. This step is needed to generate an answer to change the frequency of the CPU.

Lin teaches changing the frequency of the CPU according to the output vector, wherein m and n are positive integrals (**Lin**, C4:39-42).

Claims 12 and 23.

Lin does not teach the radial basis function is a Gaussian function. Feng teaches the radial basis function is a Gaussian function (**Feng**, p026202-4, C1:20-26). It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify a method for changing a frequency of a central processing unit (CPU) under the control of a neural network of Lin with the radial basis function is a Gaussian function of Feng. The characteristic of a Gaussian function, is the influence of each environmental parameter on the CPU clock multiplier factor can be outstood.

Claims 13 and 24.

Lin does not teach the radial basis function is a multiquadric function. Feng teaches the radial basis function is a multiquadric function (**Feng**, p026202-4, C1:20-26). It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify a method for changing a frequency of a central processing unit (CPU) under the control of a neural network of Lin with the radial basis function is a multiquadric function of Feng. Using the characteristic of the multiquadric function, the effect of input parameters on the CPU clock multiplier factor can be outstood.

Claim 20.

Lin teaches a method for changing a frequency of a central processing unit (CPU) under the control of a neural network, wherein the neural network comprises m basis functions for calculating an output vector according to n environmental parameters, the method comprising steps of (ii) executing an application procedure, further comprising: providing the n environmental parameters (**Lin**, C3:65 through C4:2 and C4:54-56).

Lin does not teach calculating m basis vectors by substituting the n environmental parameters into the m basis functions. Feng teaches calculating m basis vectors by substituting the n environmental parameters into the m basis functions (**Feng**, p026202-4, C1:6-8 and 15-20). It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify a method for changing a frequency of a central processing unit (CPU) under the control of a neural network, wherein the neural network comprises m basis functions for calculating an output vector according to n environmental parameters of Lin calculating m basis vectors by substituting the n environmental parameters into the m basis functions of Feng. The number of functions that the inputted parameters effect must be generated for the intermediate level of the radial neural network.

Lin does not teach calculating the output vector according to the m basis weights and the m basis vectors. Feng teaches calculating the output vector according to the m basis weights and the m basis vectors (**Feng**, p026202-4, 8-15). It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify a method for changing a frequency of a central processing unit (CPU) under the control of a neural network, wherein the neural network comprises m basis functions for calculating an output vector according to n

environmental parameters of Lin with calculating the output vector according to the m basis weights and the m basis vectors of Feng. This generates an answer to change the frequency of the CPU.

Lin teaches changing the frequency of the CPU according to the output vector, wherein m, n and p are positive integrals (**Lin**, C4:39-42).

EN Since the term "pseudo" is not defined in the specification, I defined "p pseudo" environmental parameters as n', "pseudo output vector" as (output vector)'.

Conclusion

The prior art of record and not relied upon is considered pertinent to the applicant's disclosure.

-An Adaptive Algorithm for Low-Power Streaming Multimedia Processing; Andrea Acquaviva, Luca Benini, Bruno Ricco.

-Dynamic Reconfiguration for Complex Multimedia Applications; Baochun Li, Klara Nahrstedt.

-Real-time content-based processing of multicast video; Wensheng Zhou, Asha Vellaikal, Ye Shen, Jay C-C Kuo.

Claims 1-36 are rejected.

Correspondence Information

Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner Peter Coughlan, whose telephone number is (571) 272-5990. The Examiner can be reached on Monday through Friday from 7:15 a.m. to 3:45 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor David Vincent can be reached at (571) 272-3080. Any response to this office action should be mailed to:

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(571) 273-8300 (for formal communications intended for entry.)

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Peter Coughlan

9/28/05

P.E.